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10/549,909	10/30/2006	Eugenio Ferreira Da Silva Neto	DASI3004/FJD	4690

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EXAMINER	
CHOW, CHIH CHING	
ART UNIT	PAPER NUMBER
2191	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/549,909	DA SILVA NETO, EUGENIO FERREIRA	
	Examiner	Art Unit	
	CHIH-CHING CHOW	2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 January 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *6-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 October 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to amendment dated January 27, 2010.

2. Per Applicants' request, Specification, claims 6 has been amended, claims 11-12 are new.

3. Claims 6-12 remain pending.

Response to Amendment

4. Applicants' amendment dated 1/27/2010, responding to the 10/27/2009 Office action provided in the objection of drawings. The examiner has reviewed the updated Specification, respectfully. The set of formal drawings filed concurrently with the above-mentioned amendment is accepted by the Examiner.

Response to Arguments

5. Applicant's arguments with respect to claims 6-12 have been considered but are moot in view of the new ground(s) of rejection.

6. Applicants' argument dated 1/27/10, responding to the 10/27/2009 Office action provided in the rejection of claims 6-12. The examiner has reviewed the updated amendments, and noted that new matter has been introduced into the disclosure, therefore a new prior art has to be introduced. See 35 USC § 102 and 35 USC § 103 rejections (claims include the amendments) herein below:

Claim Objections

7. Claim 6 objected to because of the following informalities: last sentence, "executing the software code with the field device by using a function-block shell representing an application program interface between the field bus stack and the function-block applications". Wherein, the "field bus" should be "fieldbus" (see Specification). Appropriate correction is required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 6, 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2002/0077711 A1, by Nixon et al., hereinafter "Nixon"; in view of US 2005/0033886 A1, by Grittke et al., hereinafter "Grittke".

As per claim 6,

- ***A method for transferring software code from a control unit to a field device of process automation technology, comprising the steps of:***

Nixon teaches transferring software code from a control unit to a field device, see Nixon's Abstract, "This data and information is manipulated in a coordinated manner by the data collection and **distribution system** and is **redistributed to other applications** where this it is used to perform overall better or more optimal

control, maintenance and business activities."; paragraph [0003], "Process control systems, like those used in chemical, petroleum or other processes, typically **include one or more centralized or decentralized process controllers communicatively coupled to at least one host or operator workstation and to one or more process control and instrumentation devices,** such as **field devices**, via analog, digital or combined analog/digital buses." and paragraph [0013], "**applications** may be provided which combine or use data from previously disparate collection systems such as process control monitoring systems, equipment monitoring systems and process performance models to determine a better overall view or state of a process control plant, to better diagnose problems and to take or recommend actions in production planning and maintenance within the plant." – new applications/software code can be distributed/transferred to adapt a better performance results; further in paragraph [0032], "The process control system 14, which may be **a distributed process control system**, includes one or more operator interfaces 14A coupled to one or more **distributed** controllers 14B via a bus, such as an Ethernet bus." -- wherein the distribution system is used for 'transferring' control software and data.

- ***integrating the software code in a software module, which represents the software driver of the field device and which encapsulates data and functions of the field device and requires, as runtime environment, an operating program for field devices; [[and]]***

See Nixon's paragraph [0007], "it is currently known to provide an expert engine that **uses process control variables** and limited information about the operating condition of the **control routines or function blocks or modules associated with process control routines** *(integrating the software code in a software module)* to

detect poorly operating loops and to provide information to an operator about suggested courses of action to correct the problem."; further see FIG. 4 and description in paragraph [0086], "A process control **runtime system** 318 is in contact with the web services 310 and the external servers 316. The **runtime system** 318 includes control applications, operator interface applications, alarms and events applications and **real-time data applications** any of which can use the data from the external servers or from the web services" -- *runtime environment.* Also see paragraph [0092], "Each area may be broken down into different units such as Unit1, Unit2, etc. Still further, each unit then can have **numerous modules associated therewith**. These modules may be any modules, such as **modules developed within the process control network in the consistent format or modules associated with disparate data sources** *(module encapsulate data and functions).* These **modules are generally used to configure how different applications** operate in conjunction with each other and **communicate** with each other." -- *transfer of the software code to various field device via communication connections.*

Nixon teaches transmitting software module to field devices, but he does not mention device driver explicitly, however, Grittke teaches it in an analogous prior art; see Grittke's FIG. 2 and description in paragraph [0028], "The WAN-, LAN-interface 13 cares, **using the appropriate driver program** (Bus-Client), **for converting the data to the TCP/IP standard,** and uses a stored address book for selecting the appropriate Internet address of the field bus adapter 7. The data are exchanged between the computer unit/access unit 8 and the field bus adapter 7 over the WAN, LAN."

It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to supplement Nixon's disclosure of transferring software code from a control unit to a field device by using device driver taught by Grittke. The modification would be obvious because one of ordinary skill in the art would be motivated to convert the protocol to the appropriate field bus standard (see Grittke's paragraph [0028]).

- ***establishing a communication connection with the operating program and the field device, resulting in a transfer of the software code via the communication connection[[.]]; and***

See Nixon's paragraph [0005], "many process plants, and especially those which use **smart field devices**, include equipment monitoring applications which are used to help **monitor and maintain the devices** within the plant regardless of whether these devices are process control and instrumentation devices or are other types of devices. For example, the Asset Management Solutions (AMS) application sold by Fisher-Rosemount Systems, Inc. **enables communication with and stores data pertaining to field devices** to ascertain and track the operating state of **the field devices**." -- *establishing a communication connection with the operating program and the field device.*

- ***executing the software code with the field device by using a function-block shell representing an application program interface between the field bus stack and the function-block applications.***

See Nixon's paragraph [0103], "a shadow function block or shadow module element is **a function block or module in the configuration database of the integrated system and is configured to be useable as a module.** This shadow module, however, is in contact with the data source or device and has its outputs

generated by or provided by that external device. Furthermore, the shadow module provides the inputs it receives to the external data source. Thus, the shadow module merely has inputs and outputs and a state that reflects the inputs to, outputs of and the state of the actual device or data source as determined by the data received from that data source. The use of a shadow module, however, **makes the inputs and outputs of the external device or data source accessible to the other modules within the integrated system** *(the shadow function block is executed functioning as an interface between the fieldbus and the function-block application)*, such as modules associated with applications in the asset utilization suite 50. In this manner, the shadow function block or module operates as a conduit of information between the external data source and the applications within the integrated system by putting the data received from the external data source in a format that is usable by other applications within the integrated system." -- using a function-block shell representing an application program interface between the fieldbus stack and the function-block applications.

As per claim 8,

- ***The method as claimed in claim 6, wherein: the software code corresponds to a function block.***

The rejection of claim 6 is incorporated; further see Nixon's paragraph [0007], "it is currently known to provide an expert engine that uses process control variables and limited information about the operating condition of **the control routines or function blocks or modules associated with process control routines**" and paragraph [0059], "different process controller or control applications 208

illustrated in FIG. 3 as part of the **process control function block** 206 may use the collected process control data 201 for a number of reasons or purposes." – software code corresponds to a function block.

As per claim 9,

- ***The method as claimed in claim 8, wherein: said function block is provided in the form of a function block according to Foundation® Fieldbus Specifications.***

The rejection of claim 8 is incorporated. The 'Foundation® Fieldbus Specifications' is not novel to the people in the art, see paragraph [0007] under BACKGROUND OF THE INVENTION of the current application, "F**oundation Fieldbus Specifications, which are publicly available**"; further see Nixon's paragraph [0103], "In the preferred embodiment of the configuration system, the modules created for the devices, applications, etc. within the integrated system and the external data sources are based on the **Fieldbus** or DeltaV module concept, which are very similar. Here, the module 364, because it is associated with an external data source which does not use the module organization, is a shadow function block or shadow module. Generally speaking, **a shadow function block or shadow module element is a function block or module** in the configuration database of the integrated system and is configured to be useable as a module."

As per claim 10,

- ***The method as claimed in claim 8, wherein: said function block includes e.g. algorithms, parameters or methods of the field device.***

The rejection of claim 8 is incorporated; further see Nixon's paragraph [0003], "Process control systems, like those used in chemical, petroleum or other processes, typically include one or more centralized or decentralized process controllers communicatively coupled to at least one host or operator workstation and to one or more process control and instrumentation devices, such as **field devices,** via analog, digital or combined analog/digital buses. **Field devices**, which may be, for example valves, valve positioners, switches, transmitters, and sensors (e.g., temperature, pressure and flow rate sensors), perform functions within the process such as opening or closing valves and measuring **process parameters**."

As per claim 11,

- ***The method as claimed in claim 6, wherein:***

the authenticity of said software module is checked by the function-block shell.

The rejection of claim 6 is incorporated; Nixon teaches transmitting software module to field devices, but he does not mention checking the authenticity explicitly, however, Grittke teaches it in an analogous prior art; see Grittke's paragraph [0033], "Following the actuation of the switch 14, access to the field devices 2, 3, 4, or the field bus adapter 7, is possible for a certain time span. This safety level already offers a certain amount of protection against unauthorized accessing of the devices 2, 3, 4, 7. For instance, it is not out of the question that a plurality of accessings of the device might occur following actuation of the switch 14, and that perhaps one of them might be unauthorized. Therefore, in order to block unauthorized accessing, only the first accessing, or only one connection, is allowed after the actuation of the switch, while all additional accessing/connection attempts are rejected. This assumes that the first accessing following the switch

actuation is **authorized**. However, should the first accessing be unauthorized, then this is noticed by the **authorized** accessor, since he is subsequently rejected. In this case, the authorized accessor can immediately institute countermeasures."

It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to supplement Nixon's disclosure of transferring software code from a control unit to a field device by checking authenticity taught by Grittke. The modification would be obvious because one of ordinary skill in the art would be motivated to ensure the field device has the appropriate safety level (see Grittke's paragraph [0033]).

As per claim 12,

- ***The method as claimed in claim 6, wherein:***
the parameters of the function-block shell which is composed of a function-block user interface and the function-block software code are changed via the function-block user interface.

The rejection of claim 6 is incorporated; further see Nixon's paragraph [0005], "In some instances, the AMS application may be used to communicate with devices to **change parameters within the device,** to cause the device to run applications on itself, such as self calibration routines or self diagnostic routines, to obtain information about the status or health of the device, etc."

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable US 2002/0077711, by Nixon et al., hereinafter "Nixon"; in view of US 2005/0033886,

by Grittke et al., hereinafter "Grittke"; further in view of U.S. 2005/0046838 by Wittmer et al., hereinafter "Wittmer".

As per claim 7,

- ***The method as claimed in claim 6, wherein: the software module is provided in the form of a DTM (device type manager) according to FDT-Specifications, and the operating program serves as an FDT-frame application.***

The rejection of claim 6 is incorporated; Nixon and Grittke teach transmitting software module to field devices, but he does not mention device type manager and Field Device Tool Specifications explicitly, however, Sharpe teaches it in an analogous prior art; see Sharpe's column 1, lines 13-15, "The present invention relates generally to **management systems having applications that manage "smart" field devices** within a process or a plant and, more particularly, to a communication network capable of communicating with one or more smart field devices within a process." – Device Type manager for field devices. Also see column 1, lines 39-43, "Typical smart field devices are capable of transmitting an analog signal indicative of the value associated with the device, for example, a measurement value, and of storing and also digitally **transmitting detailed device-specific information** *(FDT-Specifications),* including calibration, configuration, diagnostic, maintenance and/or process information. Some smart devices may, for example, store and transmit the units in which the device is measuring, the maximum ranges of the device, whether the device is operating correctly, troubleshooting information about the device, how and when to calibrate the device, etc." And further see column 6, lines 10-13, "the FMS system 10 is **a PC-based software tool** that includes applications which **perform field-device**

management tasks. *(FDT-Specifications).* The FMS system 10 integrates device management for each of the devices within the process" – Also see an FDT-frame application in Fig. 1.

It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to supplement Nixon's and Grittke's disclosure of transferring software code from a control unit to a field device by using device type manager and field device tool specific applications taught by Sharpe. The modification would be obvious because one of ordinary skill in the art would be motivated to perform field-device management tasks and integrate device management for each of the devices (Sharpe's column 6, lines 11-12).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Loechner et al., US Patent No. 7,233,745, discloses field devices comprising a transmitter and/or receiver for wireless data communication are provided. It is proposed to evaluate the energy available for wireless data communication in data transmitting or data receiving field devices prior to activation of the transmitter and/or receiver of the field device.

Wittmer et al., US 2005/0046838 A1, discloses a process for measuring a point comprising at least one spectrometer and a measuring transducer connected thereto for picking up, processing and forwarding measuring signals from the spectrometer.

Donaires et al., US 2007/0067512 A1, discloses a method, system computer-readable medium and software arrangement are provided for processing

a device support file for a field device, such as a Foundation™ Fieldbus device. A device support file can be installed on a processing arrangement. The device support file may be received, for example, from a remote computer system. In one exemplary embodiment, a configuration file may be opened and reviewed to identify any missing device support files, and the missing files may be obtained automatically from the remote computer system. Upon the installation, a capabilities file of the device support file may be validated by comparing the capabilities file with common (previously obtained) rules generally associated with the capabilities file.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

/Chih-Ching Chow/
Examiner, Art Unit 2191
5/20/10
/Ted T. Vo/
Primary Examiner, Art Unit 2191